Translation

PCT/EP2003/013622

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference S 2838	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2003/013622	International filing date (*day/month/year*) 03 December 2003 (03.12.2003)	Priority date (*day/month/year*) 04 December 2002 (04.12.2002)
International Patent Classification (IPC) or national classification and IPC C08B 31/02, 33/02, 35/02, A61K 47/48		
Applicant SUPRAMOL PARENTERAL COLLOIDS GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 6 sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   ☒ Box No. I Basis of the report
   ☐ Box No. II Priority
   ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   ☐ Box No. IV Lack of unity of invention
   ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   ☐ Box No. VI Certain documents cited
   ☐ Box No. VII Certain defects in the international application
   ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15 May 2004 (15.05.2004)	15 March 2005 (15.03.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2003/013622

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ The international application as originally filed/furnished

☒ the description:

pages 1, 2, 4-17, as originally filed/furnished

pages* 3 received by this Authority on 24 September 2004 (24.09.2004)

pages* _____ received by this Authority on _____

☒ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* 1-34 received by this Authority on 24 September 2004 (24.09.2004)

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-4, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☒ the claims, Nos. 34

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

The features regarding the active substance that were included in the redrafted claim 34 cannot be derived from the passages of the description indicated by the applicant. The indications on page 2, paragraphs 2 and 3, of the description, are not relevant already because they do not relate to the prior art. The other cited passage on page 4, lines 12-19, of the description, relates mainly to aldonic acid esters and their properties. The only unambiguous statement regarding the active substances is that they can bear phosphate groups. The amendments to claim 34 are not adequately supported by this statement either.

The examination is therefore based on the unaltered version of claim 34.

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-33	YES
	Claims	34	NO
Inventive step (IS)	Claims		YES
	Claims	1-33	NO
Industrial applicability (IA)	Claims	1-34	YES
	Claims		NO

2. Citations and explanations

Novelty:

The *Offenlegungschriften* DE-A-196 28 705 (D1) and DE-A-101 12 825 (D2) describe protein-carbohydrate conjugates obtained by coupling carbohydrates selectively oxidised at the reducing end directly to protein amino groups. The reaction between carbohydrate and protein is direct (see D1) or follows activation with EDC (see D2, example 2). The conjugates as per claim 34 appear to have the same composition and structure as the known conjugates and therefore can no longer be considered novel.

Inventive step:

D2 is considered to represent the closest prior art. The invention addressed the problem of finding an alternative preparation method for the conjugates known from D2. This problem was solved by using an alternative activation medium, preferably N-hydroxysuccinimide, instead of the activation medium used in D2, EDC, and by obtaining a corresponding aldonic acid ester as intermediate product.

The *Offenlegungsschrift* DE-A-30 29 307 (D3) teaches that N-hydroxysuccinimide can be an alternative to EDC when

producing conjugates of proteins and carbohydrates (see page 16, last paragraph). Documents US-A-4 125 492 (D4) and EP-A-0 418 523 (D3) describe the preparation of N-hydroxysuccinimide-activated aldonic acids in detail, and their use in protein conjugation (D4: column 9, lines 26-33; D5: page 7). No novelty can therefore be recognised in the preparation method as per claims 20 and 29 or in the aldonic acid ester intermediate products, nor in the compositions containing the same.